Health by Numbers

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Reductions in Premature Mortality, Rhode Island, 1989-1998

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Healthy People 2010 sets health objectives for the nation based on two broad goals:[1]

Increase quality and years of healthy life.

Eliminate health disparities.

The goals for 2010 are similar to those underlying the process used to set health objectives for the immediate past decade.[2] This analysis presents information on the reductions in premature mortality achieved by Rhode Island during the ten-year period 1989-1998 and documents the state's progress toward achieving the goal of increased lifespan. The analysis employs the measure of "years of potential life lost" (YPLL) developed by the Centers for Disease Control and Prevention, in which deaths before the age of 65 are weighted according to the difference between the decedent's age at death and the reference age of 65 years.[3] Such weighting adjusts raw counts of deaths to include information on when deaths occurred relative to a reference lifespan.

Cause of Death	Percent of YPLL
Malignant neoplasms	21.5
Injuries	19.3
Unintentional injuries	*10.5*
Suicide	*5.5*
Homicide	*3.3*
Diseases of heart	13.0
Perinatal conditions	7.5
HIV infection	5.2
Congenital anomalies	4.2
Chronic liver disease, cirrhosis	2.5
Cerebrovascular disease	2.2
All other causes	24.6

Table 1. *Leading Causes of Years of Potential Life Lost (YPLL), Rhode Island, 1995-1997*

Methods. Mortality data for state residents were selected from the Rhode Island Vital Records death files for the years 1989-1998 and analyzed by age group, gender, and underlying cause of death. As the cause of death codes are not yet assigned for 430 resident deaths that occurred in other states during 1998, cause of death information for that year is not included. Years of potential life lost were calculated as follows:

For deaths ages 65 and older, YPLL = 0.

For deaths ages 0 - 64 years, YPLL = (65 - age at death).

Rates of YPLL per 100,000 population were calculated using annual state population estimates by age and sex from the Bureau of the Census.[4] When necessitated by small numbers of cases annually, the analysis was based on aggregates of consecutive years.

Results. Over the ten-year period examined, there was a total of 95,772 deaths among Rhode Island residents, of whom 19,970, or 20.9% were persons under age 65. By year, the proportion of deaths occurring before age 65 fell from 23.1% in 1989 to 19.1% in 1998. During that same period, the state's population ages 0 - 64 years fell by just 2.4%.

The annual number of YPLL recorded also fell during this period, from 40,664 in 1989 to 31,995 in 1998, a decline of 21.4%. The rate of YPLL per 100,000 population ages 0 – 64 declined similarly, by 19.4% overall, with year-to year decreases observed in eight of the ten years. (Figure 1)

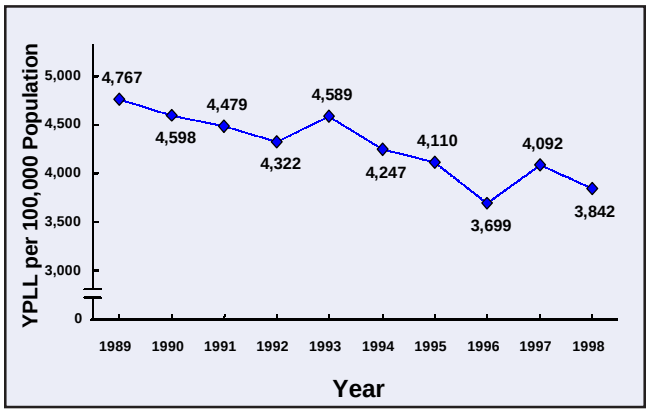

Figure 1. *Years of Potential Life Lost (YPLL) per 100,000 Population Ages 0 - 64 Years, Rhode Island, 1989-1998.*

The primary contributions to YPLL by underlying cause of death reflect both those causes that are prominent in simple mortality counts and those that are most common among young children, adolescents, and young adults. (Table 1) Although the major chronic diseases are represented among the ten leading contributors to YPLL, including cancer, heart disease, stroke, and cirrhosis of the liver, together they comprise less than 40% of YPLL during 1995-1997. The remaining 60% is

accounted for by causes of death that occur predominantly among the very young (perinatal conditions, congenital anomalies) or among children and young adults (suicide, homicide, unintentional injuries, and AIDS).

By gender, premature mortality as measured by YPLL is greater among males than among females. Over 1989-1998, just under two-thirds (64.8%) of YPLL were accounted for by mortality among males. However, males experienced slightly greater reductions (down 17.6%) than females (down 12.9%) in YPLL per 100,000 between 1989-1991 and 1996-1998, tending to reduce the disparity.

The reduction in YPLL was concentrated in specific age groups within the age range 0-64 years. (Figure 2) The largest decreases, as measured from the period 1989-1991 to 1996-1998, have been observed among young children ages 1-15 years, where the YPLL rate has declined by 38%, and among infants during the first year of life, where the decline has been nearly as high (26%). Adolescents and young adults have also experienced significant declines in premature deaths, as the YPLL rate for that group has fallen by 13%. Only the middle-aged have not benefited greatly, as their rate has actually increased slightly.

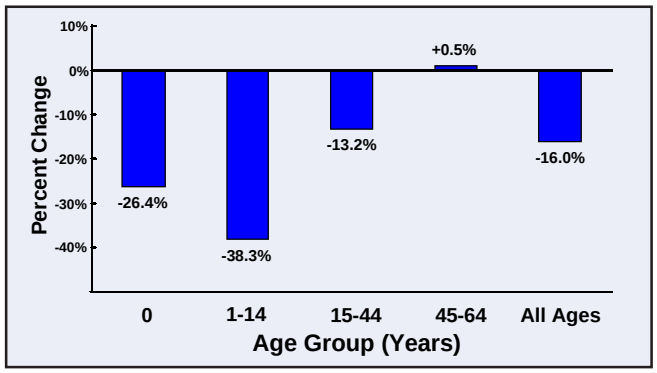

Figure 2. *Percentage Change in Years of Potential Life Lost (YPLL) per 100,000 Population Ages 0 - 64 Years, 1989-1991 to 1996-1998, by Age Group, Rhode Island.*

Conclusions. The period from 1989 to 1998 was one where the rate of mortality, as measured by YPLL, among those under age 65 declined rapidly in Rhode Island. The improvement was most evident among the very young, those affected by perinatal conditions and by congenital anomalies, and among children, adolescents, and young adults, those affected primarily by injuries and HIV infection. Older adults, among whom the impact of chronic diseases associated with aging is greater, did not experience the same level of mortality reductions as younger residents.

Placed in the context of the *Healthy People 2010* goal of increasing the lifespan of Rhode Islanders, the observed rapid changes in mortality during the last decade give promise of further reductions in premature mortality. An evident continuing challenge is reducing mortality from chronic diseases among middle-aged adults. Whether we can achieve reductions in these deaths will depend greatly on whether our population achieves healthier lifestyles in the areas of exercise, diet, tobacco use, and alcohol use. It remains a formidable task for public health to induce such changes on the scale needed to improve on the results presented here.

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